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coherent beam, as noted in paragraph 3 of the Office Action, on page 2 and no new matter has added.

Also , in claim 7, "up to 10 in. or more" is replaced by -- up to at least 10 in.--

Further claim 12 has been rewritten as indicated so as to better relate to claim 2.

Also, in claims 18 and 37, "the objective" is changed to -- an objective -- to serve as an antecedent for references to "said objective" that follow in such claims.

As for "the article to be viewed" in claim 37, this is believed proper antecedent language and good English usage.

Also the term "said image" in claim 36 relates back to the antecedent appearing at line 10 of claim 32 and is likewise believed proper.

No As for claim 36, it recites additional novelty not yet addressed by previous Office Actions in which a contour map, showing various heights of an object or article can be determined as more fully described in the first full paragraph of page 14 and shown in Figures 15 and 16. That is, no art has been cited which remotely suggests the novelty of applicant's claim 36.

Claim 33 as amended is believed to meet the previous objection thereto as incomplete.

Claim 35 merely narrows the scope of claim 32, to point out that a pinhole array provides a larger field of view than say one pinhole . That is a key element of the present invention for which no prior art has yet been seen.

The Office Action rejection of claims 1, 2-14, 15-17, 18, 19, 20, 21-31, 32-36, 37, 38 and 39 as obvious under 35 U.S.C. 103 (a) over the Schock et al. Article in view of the Friedl patent (PN. 3,598,466) is respectfully traversed.

Schock prepares many correction holograms on a masked holographic plate by sending a divergent beam through a curved window (not an objective) per his Figure 6.

Schock

subsequently sends five green & blue beams through the holograms travelling in the opposite direction back through the curved window to intersect at a point in a pipe per his Figure 7.

That is, Schock's beams , per his Figure 7, go in the wrong direction for viewing an object. For example, looking at applicant's Figure 4, article 55 is illuminated, either before or behind, by a laser and light from the so-illuminated article flows back through lens 44 and the remainder of the lens system, to the eye 54, for viewing the article in a microscopic field. If one direct the light in Figure 4 in the opposite direction (e.g. per Schock's Figure 7) you have a photoreducing or micromachining operation, which is unsuitable for microscopic viewing of an article.

That is, Schock is sending his beams in the wrong direction ,per his Figure 7 as opposed to receiving a microscopic image from within the pipe or cylinder for viewing purposes.

Thus Schock et al. is believed not properly combinable with the Friedl patent because Schock (per his Figure 7) is projecting laser beams in a micromachining or photoreducing mode while Friedl is just receiving an image as further discussed below.

That is, Friedl's structure is that of a telescope wherein an incoming parallel beam is focused. Applicant's claims, in contrast, deal with a microscope wherein a point source beam is focused. These are clearly two different structures.

No such claimed

Further Friedl et al. make a hologram from one lens, which is enlarged to a second hologram, which is used to correct for another lens which can have different aberrations than the first lens.

Not only is such process expensive, time consuming and difficult but Friedl can only correct for geometric aberrations in lenses --not random ones.

In the present invention, per claims 1 et seq., a corrective hologram is made for an objective in the same system, which objective can be of low quality (with various aberrations) and at low cost. Further applicant's hologram corrects for all aberrations, geometric and random, e.g. specks or spots in the objective.

Thus there is no suggestion of combining the two disparate references of Schock et al. and Friedl et al. which direct laser beams in opposite directions and for different purposes, unless one has in view applicant's own disclosure. This is hindsight reconstruction that does not establish obviousness, In re Civitello , 144 USPQ 10.

Now the PTO has the burden of establishing a prima facie case of obviousness. That is, the prior art must show an incentive to combine references. Also the prior art references must teach or suggest all the limitations of the present claims.

In the case of claims 1-20, herein ,the claim limitations include a pinhole in combination with an objective to make a corrective hologram for that objective which are then employed for accurate viewing of an article through such objective.

With respect to claims 21-39, the claim limitations include an array of pinholes, in combination with an objective, to make a corrective hologram for that objective, for accurate viewing of an article through such objective.

Again, applicant's apparatuses are less complex and more reliable in that he makes a hologram from a lens and uses it to correct for the same lens. Accordingly, applicant's invention makes possible various size microscopes which can provide clear images from flawed and thus low-cost objectives, which microscopes are not suggested by the applied references.

As for the Office Action assertion that applicant's claimed microscope structure is the same as the respective structures of the cited art, in view of Ex parte Masham, 2 USPQ 2d 1647, the respective structures are different. That is, in Masham, both application and reference disclose an apparatus having a chamber and a mixing means situated therein. Here however, the Friedl structure is a telescope while applicant's claimed structure is that of a microscope, two different structures as noted above.

As for the structure of Schock's et al. per Figure 7, there is an array of holograms which project to an intersection in a cylinder to define a photoreducer or micromachiner which is greatly different from applicant's structure for viewing an article through a corrected objective, per his claims 1 et seq. and 21 et seq.

As to applicant's claims 21 et seq., which are directed to a holographic image corrector which employs an array of pinholes, the Office Action again states that such pinholes are a matter of design choice that is known in the art and again, does not produce a reference to support such conclusion.

As to the benefit of having a pinhole array over a single pinhole system, the former embodiment obtains resolution over a relatively large field of view compared with a single pinhole. That is, the use of an array of pinholes to correct an objective in a

microscope and to have a broad field of view, is a structural feature of claims 21 et seq. that is nowhere seen in the prior art

This is especially true of the method defined in claim 36, wherein per the specification on page 14 and as indicated in figures 15 and 16, a reference beam is added to the reconstruction of the hologram that interferes with the reconstructed reference beam (with object information imprinted on it) so as to produce a fringe pattern thereon to permit extracting height information for a contour map with the height of points on an object. Also as no cited reference remotely suggests the method of such claim, it is believed to have considerable novelty.

Further, since claims 15-20, less 19 and claims 32-39, less 38 are method claims, no structural objection from the prior art can apply under the above Macham case.

Also such method claims are believed distinguished over the applied references for reasons discussed above.

Thus the method of claim 15 provides for writing a hologram to correct for an objective and viewing an article through the corrected objective, to obtain a corrected image of such article.

Such method is not suggested by Figure 7 of Schock, who discloses a method for photoreduction, nor of Friedl et al. who disclose a process for making a hologram, magnifying the hologram and making another hologram. Further Friedl only corrects for geometric aberrations in lenses, in a complex method for making a telescope.

The prior art patent of Reynolds et al (PN. 4,902,100) has been noted and is believed further removed from applicant's claims than the above references of record.

In view of the foregoing, the claims of record, as amended, are believed distinguished over the applied art and in condition for allowance. Early notice of allowance is requested.

In accordance with Section 714.01 of the M.P.E. P., the following information is presented in the event that a call may be deemed desirable by the Examiner:

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Respectfully submitted,



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